

5     **WHAT IS CLAIMED IS:**

1.     A composition comprising a first and second peptide, the first peptide comprising a CTL-inducing epitope and the second peptide comprising either an HIV infection-inhibiting sequence  
10    or a T helper cell-inducing epitope.
2.     The composition of claim 1, wherein the second peptide comprises an HIV infection-inhibiting sequence.  
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3.     The composition of claim 1, wherein the second peptide comprises a T helper cell-inducing epitope.  
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4.     The composition of claim 1, wherein the first peptide comprises a sequence which is both a CTL-inducing epitope and an HIV infection-inhibiting sequence.
- 25    5.     The composition of claim 1, comprising a first, second, and third peptide, wherein the first peptide comprises a CTL-inducing epitope, the second peptide comprises a T helper cell-inducing epitope, and the third peptide comprises an HIV infection-inhibiting sequence.
- 30    6.     The composition of claim 1, wherein the T helper cell-inducing epitope is characterized as having an amphipathicity value of from about plus 10 to about plus 20.

- 5      7.      The composition of claim 1, wherein the sequence of the first, second or third peptides  
comprises a sequence derived from an HIV gene product.
- 10      8.      The composition of claim 7, wherein the sequence of the peptide comprising a CTL-  
inducing epitope comprises a sequence in accordance with those presented in Table 1.
- 15      9.      The composition of claim 7, wherein the sequence of the first, second or third peptides  
comprises a sequence derived from an HIV envelope gene product.
- 20      10.     The composition of claim 9, wherein the sequence of the first, second or third peptides  
comprises a sequence derived from HIV gp120.
- 25      11.     The composition of claim 10, wherein the sequence of the peptide comprising a CTL-  
inducing epitope comprises a sequence derived from the V3 loop of HIV gp120.
- 30      12.     The composition of claim 11, wherein the sequence of the V3 loop-derived CTL-inducing  
peptide comprises a sequence in accordance with those presented in Table 2.
13.     The composition of claim 12, wherein the sequence of the V3 loop-derived CTL-inducing  
peptide includes the sequence RIQRGPGRAFVTIGK (R15K, seq id no:1).
14.     The composition of claim 10, wherein the sequence of the peptide comprising a T helper

5 cell-inducing epitope comprises a sequence derived from an HIV gp120 sequence characterized as having an amphipathicity value of from about plus 10 to about plus 20.

15. The composition of claim 14, wherein the sequence of the T helper cell-inducing peptide  
10 includes the sequence CRIKQIINMWQGVGKAMYA (C19A, seq id no:2).

16. The composition of claim 9, wherein the peptide comprising an HIV infection-inhibiting  
sequence comprises a sequence wherein antibodies against which sequence are capable of  
15 inhibiting HIV cellular infection.

17. The composition of claim 10, wherein the sequence of the HIV infection-inhibiting  
peptide comprises a sequence derived from the V3 loop, the N-terminal portion, or the CD4  
20 binding region of HIV gp120.

18. The composition of claim 17, wherein the sequence of the HIV infection-inhibiting  
peptide comprises a sequence in accordance with those presented in Table 11A.  
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19. The composition of claim 17, wherein the sequence of the HIV infection-inhibiting  
peptide includes the sequence RIQRGPGRAFVTIGK (R15K, seq id no:1),  
NNTRKSIRIQRGPGRAFVTIGKIG (N24G, seq id no:3), EQLWVTVYYGVPV (E13V, seq id  
30 no:4), RAFVTIGK (R8K, seq id no:5), TKGPRVIYATGQ (T13Q, seq id no:6), or  
HIGPGRAFYTTFKN (H13N, seq id no:7).

- 5      20.      The composition of claim 19, wherein the sequence of the HIV infection-inhibiting peptide includes the sequence EQLWVTVYYGVPV (E13V, seq id no:4).
- 10      21.      The composition of claim 1, wherein the peptides are monomers, polymers or lipid-tailed peptides.
- 15      22.      The composition of claim 1, wherein the peptides are dispersed in a pharmacologically acceptable vehicle.
- 20      23.      The composition of claim 1, wherein the sequences of the first or second peptides are derived from an influenza virus protein or a sendai virus protein.
- 25      24.      The composition of claim 23, wherein the sequence of the peptide includes the sequence TYQRTRALVTG or HGEFAPGNYPALWSYA.
- 30      25.      A method of immunization, comprising administering to an animal an immunologically effective amount of a composition in accordance with any of claims 3 through 23.
- 30      26.      A method for enhancing the CTL response of an animal to a CTL-inducing immunogen comprising additionally administering to the animal an immunologically effective amount of a peptide bearing a T helper cell epitope.

5     27.     A method for identifying a candidate substance capable of enhancing a CTL response comprising:

          (a)     administering to an animal both the candidate substance and an  
                  immunogen capable of inducing a CTL response;

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          (b)     recovering CTLs from the animal; and

          (c)     determining whether the CTL response is enhanced by the presence of the  
                  candidate substance.

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28.     A method for inhibiting HIV infection of target cells, comprising contacting said target  
cells with an immunologically effective amount of a composition in accordance with any of  
claims 2 and claims 4 through 22.

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